Appendix:
Agricultural Resource Surveys and Data

Agricultural Land Values Survey (ALVS)

The ALVS was conducted annually in February-April from 1984 through 1994 by the National Agricultural Statistics Service (NASS) with funding participation from the Economic Research Service (ERS). In 1994, questions on land values and cash rents were added to the June Agricultural Survey (JAS) and the ALVS was subsequently discontinued. The ALVS polled a sample of farmers in each State by mail and telephone for their opinions of farmland values and cash rents in their localities**.** The switch to the JAS, a personal enumeration survey, permits information to be collected for specific tracts and linked to other farm and natural resource data through geo-referencing. For more on the JAS, see the description below.

Agricultural Resource Management Study (ARMS)

The ARMS, developed from combining the former Cropping Practices Survey (CPS) and the Farm Costs and Returns Survey (FCRS), was conducted for the first time in 1996 by NASS with funding from NASS and ERS. The ARMS provides data to answer questions about agricultural resource use and costs, farm sector financial conditions, and farm production practices, including Integrated Pest Management (IPM). The ARMS is conducted in three phases. Phase I or the screening phase takes place in June-August and collects general farm data on crops grown, livestock produced, and farm sales. These data are used to identify farms to be contacted in phases II and III. Phase II, conducted in October-December, collects data associated with agricultural production practices, resource and input use, and production. Phase III, conducted in February-April, gathers data on cost of production for specific commodities and on the financial condition of farms. The ARMS is conducted by personal enumeration of farmers. A multi-frame, stratified sampling procedure is used. The results are weighted and aggregated to develop State, regional, and national estimates. The data from the initial ARMS in 1996 are not available for inclusion in this report.

Area Studies Project

The Area Studies project was a data collection and modeling effort which linked farm production activities to environmental characteristics for 10 major U.S. watersheds. The effort involved the Economic Research Service (ERS), the Natural Resources Conservation Service (NRCS), U.S. Geological Survey (USGS), and the National Agricultural Statistics Service (NASS). The 10 areas for which usable data were obtained were selected from those included in USGS's National Water Quality Assessment Program, and included Albermarle-Pamlico Drainage, Central Nebraska Basins, Georgia-Florida Coastal Plains, Iowa/Illinois Basin, Lower Susquehanna River Basin, Mid-Columbia River Basin, Mississippi Embayment, Southern High Plains, Upper Snake River Basin, and White River Basin. Each area had significant cropland and agricultural chemical use. Surveys conducted in each area between 1991and 1993 collected detailed information on production technologies, cropping systems, and agricultural practices at both the field and whole farm level. The survey sample points corresponded with National Resource Inventory (NRI) sample points, for which NRCS had collected soil, water, and other natural resource data.

Census of Agriculture

The Census of Agriculture has been conducted every 5 years. A Census of Agriculture was conducted in 1992 by the Bureau of the Census, U.S. Department of Commerce. In 1996, responsibility for the Census of Agriculture was transferred to the USDA's National Agricultural Statistics Service (NASS) and the 1997 Census will be conducted by that agency.

The Census attempts to be a complete enumeration of the general characteristics of all agricultural operations. However, it uses a random sampling procedure to estimate a wide variety of financial and operator characteristics.

Chemical Use Surveys

Chemical Use Surveys were initially funded under the 1989 President's Food Safety Initiative. Fruit and vegetable crops are the primary target of the survey program, with even-year surveys to cover vegetables and odd-year surveys to cover fruits. In each year, certain commodities are targeted in order to obtain more comprehensive information on management practices and cost for those commodities. A significant emphasis has been placed on collecting data on IPM and on organic production. The surveys are conducted by NASS using personal enumeration of a stratified systematic sample of growers who produce at least one acre of the targeted crops. The 1990 survey was limited to 4 States. Since then, the surveys have gathered data on pesticide use for most commercial production of fruits and vegetables in the United States. The major producing States included in each of the surveys were as follows:

- 1990 vegetable survey: 4 States: AZ, FL, MI, and TX
- 1991 fruit and nut survey: 13 States: AZ, CA, FL, GA, MI, NY, NC, OR, PA, SC, TX, VA, and WA
- 1992 vegetable survey: 14 States: AZ, CA, FL, GA, IL, MI, MN, NJ, NY, NC, OR, TX, WA, and WI
- 1993 fruit survey: 9 States: CA, FL, MI, NC, NY, OR, PA, SC, and WA
- 1994 vegetable survey: 14 States: Same States as the 1992 survey
- 1995 fruit survey: 10 States: Same States as the 1993 survey with addition of GA
- 1996 vegetable survey: 13 States: Same States as the 1992 survey except IL dropped

Conservation Compliance Status Review

In 1995, the Natural Resources Conservation Service conducted a status review of tracts previously determined to be predominately highly erodible land (HEL) using a 4 percent random sample. The sample is statistically reliable at the State level for States with large acreage of HEL and high participation in USDA programs. It is reliable at the regional level for other areas. Each tract in the sample was visited to determine the extent of compliance with the HEL provisions of the 1985 and subsequent Farm Acts. The review results were weighted and aggregated to develop State, regional, and national estimates.

Conservation Reserve Program (CRP) contract data

The Farm Service Agency (FSA) develops and maintains a set of data on all tracts enrolled in the CRP, based on information provided by the program participants and observations by FSA during onsite inspections. This data set includes type of contract, location, acreage enrolled, land capability class and subclass, type and amount of crop base, average crop yield, conservation cover and practices, estimated before and after erosion, and rental rate.

Cropping Practices Surveys (CPS)

The Cropping Practices Surveys and predecessor surveys were conducted annually from 1964 through 1995 by the NASS with funding participation from ERS. In 1996, the CPS was merged into the Agricultural Resource Management Study (ARMS, described above). The CPS collected annual data on fertilizer and pesticide use, tillage systems, crop sequence, and data on other inputs and cultural practices. Fertilizer information has been reported from these surveys since 1964. In the mid-1980's, pesticide use, tillage operations, and prior crop

questions were added to the survey. Integrated pest management and nutrient management questions were included in the 1990's.

The 1995 CPS gathered data on corn, cotton, soybeans, wheat, and potatoes and represented about 182 million acres. This area included the acreage in major producing States, which accounted for 70-90 percent of the total U.S. acreage for these crops. Changing information requirements and funding has caused the number of surveyed crops and the States surveyed to vary from year to year. For some time-series presentations, not all States surveyed in any one year are included in order to have greater consistency across years:

- **Corn**

  10 States: IL, IN, IA, MI, MN, MO, NE, OH, SD, and WI
  16 States: Above 10 plus DE, GA, KY, NC, PA, and TX
  17 States: Above 16 plus CO

- **Soybeans**

  8 States: AR, IL, IN, IA, MN, MO, NE, and OH
  7 Northern States: IL, IN, IA, MN, MO, NE, and OH
  7 Southern States: AR, GA, KY, LA, MS, NC, and TN
  14 States: Includes the 7 Northern and 7 Southern States
  16 States: Includes the above 14 plus KS and SC

- **Cotton**

  6 States: AR, AZ, CA, LA, MS, and TX

- **Winter wheat**

  11 States: CO, IL, KS, MO, MT, NE, OH, OK, SD, TX, and WA
  13 States: Includes above plus ID and OR
  15 States: Includes above plus AR and IN

- **Spring wheat**: 4 States—MN, MT, ND, and SD
- **Durum wheat**: 1 State—ND
- **Fall potatoes**: 11 States—CO, ID, ME, MI, MN, NY, ND, OR, PA, WA, and WI
- **7 crops and 28 States in 1994**—10 growing corn, 8 soybeans, 6 cotton, 13 winter wheat, 4 spring wheat, 1 durum wheat, and 11 potatoes.

The CPS used a stratified sampling procedure to gather data about a randomly selected acre of the crop. Since the random acre within a field was not identified, respondents (farm operators) were asked to provide field-level information on all fertilizer and nutrient treatments, all tillage operations prior to planting, crops planted in the previous 2 years, and data on other inputs and cultural practices. The operator also identified whether the field had been designated as highly erodible land (HEL) by the Natural Resource Conservation Service and whether the farm unit participated in farm price and income support programs.

Crop Residue Management (CRM) Survey

The CRM Survey is conducted by the Conservation Technology Information Center (CTIC) to provide State and national statistics on adoption of alternative crop residue management systems for all U.S. planted cropland. The CRM Survey provides estimates on five different tillage systems: no-till, mulch till, ridge till, conventional till (15-30 percent residue), and conventional till (less than 15 percent residue). A panel of local directors of USDA program agencies and others knowledgeable about local residue management practices complete the survey each summer as a group effort. These local judgments about the use of practices are summarized to provide State, regional, and national estimates. In addition, several States also

conduct statistically derived physical surveys of crop residue levels for validation of the panel-derived estimates. CTIC is a division of the National Association of Conservation Districts and is administered by industry, government agencies, foundations, organizations, and growers.

Current Research Information System (CRIS)

CRIS maintains a data set on all agricultural and forestry research funded by USDA, including research problem area, subject, field of science, funding, objectives, approach, performing organizations, and responsible individuals. The system is maintained by the Agricultural Research Service.

Farm Costs and Returns Survey (FCRS)

The FCRS was conducted annually, through 1995, by NASS with funding from NASS and ERS. In 1996, the data requirements were merged into the new Agricultural Resources Management Study (ARMS) and FCRS was terminated. The FCRS was conducted to gather information on the financial situation of farm and ranch businesses, the costs of producing various crop and livestock commodities, and the characteristics and financial situations of farm operators and their households. The data were collected by personal enumeration of the operators of a statistical sample of farms of various sizes and types**.** Results were weighted and aggregated to develop estimates reliable at regional and national levels.

Farm and Ranch Irrigation Survey (FRIS)

The Farm and Ranch Irrigation Survey (FRIS) is a follow-on survey to the Census of Agriculture. All producers that report irrigation in the Census are eligible to receive a FRIS questionnaire. A FRIS has followed the last four Censuses of Agriculture, with data collected in 1979, 1984, 1988, and 1994. The survey is based on a stratified, random sample of irrigators and then adjusted to represent all eligible irrigators. The survey does not include irrigators in Alaska and Hawaii, nor irrigation on horticultural specialty, institutional, experimental, research, and Indian reservation farms. Past FRIS data were collected by the Agricultural Division, Bureau of the Census, Department of Commerce. However, the 1997 transfer of the Bureau of Census's Agricultural Division to the National Agricultural Statistics Service means future FRIS data will be collected by NASS.

The FRIS data are collected to be statistically reliable for the conterminous United States and each of the 18 major water resource areas. State data are available for 17 Western States plus Arkansas, Louisiana, and Florida for 1979 and 1984. In 1988 and 1994, data are reported for 27 States, which account for over 95 percent of the irrigated acreage in the Nation: Arizona, Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wisconsin, and Wyoming. Data are collected on irrigation—water sources, costs, application technologies and frequency, and crop yields—water conservation activities, and water management practices. From 17 to (most recently) 24 crops are covered.

Farm Real Estate Tax Survey

Data on real property taxes on farm and ranch lands and buildings levied by State and local governments are collected annually through a nationwide mail survey of over 4,000 taxing officials. The survey, conducted by the Economic Research Service, provides tax and acreage information on about 42,000 parcels of farm and ranch lands in the 48 contiguous States. Data on taxes levied (tax bill) rather than taxes paid are collected because taxpayer challenges or delinquencies may take several years to resolve. Over time taxes levied and taxes paid are about equal.

Foreign Ownership of U.S. Agricultural Land

The Agricultural Foreign Investment Act of 1978 (AFIDA) requires all foreign owners of U.S. agricultural land (all land used for agricultural, forestry, or timber production) to report their holdings to the Secretary of Agriculture as of February 1, 1979. Subsequent acquisitions and dispositions of such land by foreign owners are to be reported as they occur. This provides USDA with a continuing inventory of such ownership that is netted out at the end of each calendar year and reported to the President and the Congress. The information on holdings and transactions are received by the Farm Service Agency and provided to ERS for summarization and annual reporting. Foreign owners under the Act include foreign governments; entities (e.g., partnerships and corporations) created under the laws of, or that have their principal place of business in a foreign country; and U.S. entities in which there is significant foreign investment or substantial control.

June Agricultural Survey (JAS)

The JAS is a personal enumeration survey conducted by NASS to gather data on crop plantings and cropland use. It is based on an area frame sampling technique that gathers data from about 1 percent of the total land area of the entire United States. The unit of observation is the tract, which may contain one or more fields or land uses and represents a particular operator's acreage within a sample segment (approximately 1 square mile). Expansion factors are used to weight the tracts so as to develop State and national estimates. In 1994, questions on land values and cash rents were added to gather information previously secured in the Agricultural Land Values Survey (see above). Also, the JAS provides geo-referencing and the opportunity for greater analysis of land and resource use issues.

National Resources Inventory (NRI)

The NRI, conducted every 5 years by NRCS field staff, was last done in 1992. It provides information on the status, condition, and trends of land, soil, water, and related resources on the Nation's non-federal land (including all States and territories except Alaska). Data for the 1992 NRI were collected from more than 800,000 sample locations and are statistically reliable for national, regional, State, and sub-State analysis. The 1992 NRI provided a nationally consistent data base that was constructed specifically to estimate 5- and 10-year trends for natural resources from 1982 to 1992.